

# Enterprise Architecture Standard

## Geocode Projection

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**Approved By:** California Technology Agency (Technology Agency)<sup>1</sup>

## Introduction

Projection is a mathematical method of representing the surface of a three-dimensional object on a two-dimensional plane. A cornerstone of Geographic Information Systems (GIS) functionality, and of mapping in general, is the ability to project or locate a point lying on the curved surface of the earth onto a two dimensional plane.

The mathematical transformations for the many defined projections attempt to preserve the four qualities that can be compromised by projection: shape, area, distance and direction. All projections distort one or more of these qualities to some degree. In California, the Albers Equal Area Projection (NAD 83) is preferred because it favors area and distance measurements, while distorting shape and direction.

## Standard Requirements

The Geodetic Datum standard to which horizontal positions and ellipsoid heights are referenced for the State of California is NAD83, as defined in [Public Resources Code 8852](#). The Geodetic Datum standard to which orthometric heights are referenced for the State of California is NAVD88, as defined in [Public Resources Code 8853](#). These standards apply when:

1. Storing unprojected geographic data; and

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<sup>1</sup> Effective January 1, 2011, the Office of the State Chief Information Officer (OCIO) is renamed the California Technology Agency (Technology Agency).

Projecting geographic data. When projecting geographic data, the following Albers Equal Area projection is highly recommended:

<b>Albers Equal Area</b>	
Projection	Albers
Units	Meters
1 <sup>st</sup> standard parallel	34 00 00
2 <sup>nd</sup> standard parallel	40 30 00
Central Meridian	-120 00 00
Latitude of Origin	00 00 00
False easting (meters)	0
False northing (meters)	-4,000,000
Geodetic Datum	See above
Spheroid	GRS 80

## Definitions

Below are definitions pertinent to the geocoding projection processes that are included in the Statewide Information Management Manual (SIMM) Section 58C, [Enterprise Architecture Glossary](#):

**Projection** – A method for representing the surface of a sphere or other shape on a flat two-dimensional plane.

**Albers Equal Area Projection** – A projection specifically designed for maintaining area over shape and direction, particularly over large north-south variation.

**Geodetic Datum** – A standard position or level that measurements are taken from. A datum is used to define projections further, in order to deal with the fact that the earth is not a true sphere. The State of California has codified in [Public Resources Code Section 8850 – 8861](#), the official geodetic datum and reference network for use within the State. State spatial data are required to be collected and stored in this standard.

## Authorities

[Section 11545 of the Government Code](#) (b) The duties of the Secretary of the Technology Agency shall include, but are not limited to all of the following: (2) Establishing and enforcing state information technology strategic plans, policies, and standards, and enterprise architecture.

## Implementation

This EA Standard applies to all new data system development for IT projects approved after July 1, 2010.

For systems that are already in place, state agencies should review the EA Standard, and incorporate implementation or retrofit plans into their Agency Information Management Strategy.

Changes and variances to this EA Standard may be proposed using the Compliance Component Tools in Section 3.2.2 of the [Enterprise Architecture Developers Guide](#), and by following the EA Compliance Package submittal instructions in Section 5.2. Additional detail is also included in Section 4.1 within the “Compliance Components Modification” sub-section. The [Enterprise Architecture Developers Guide](#) is available in Section 58A of the [Statewide Information Management Manual](#).

Data stored in individual desktop productivity tools, such as spreadsheets, is not subject to this EA standard. However, agencies interested in geocoding such data for mapping purposes are encouraged to follow the EA Standard and associated EA Practice.